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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,687	02/14/2001	Laurent Benbadis	33339/206076	8151

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ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER

DAVIS, RUTH A

ART UNIT

PAPER NUMBER

1651

DATE MAILED: 04/22/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,687

Applicant(s)

BENBADIS ET AL.

Examiner

Ruth A. Davis

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's amendment has been received and entered into the case. Claims 11 – 18 have been added. Claims 1 – 18 are pending and have been considered on the merits.

Claim Objections

1. Claim 11 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 3. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

2. Rejections under 35 U.S.C. 112, first and second paragraph, have been withdrawn due to amendment.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1651

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 – 7, 9 – 15 and 17 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hottinger.

Applicant claims a strain of *Lactobacillus bulgaricus* (*L. bulgaricus*), lacking beta-galactosidase activity wherein a nonsense mutation occurs in at least one coding sequence of the lactose operon wherein the coding sequence encodes beta-galactosidase and has been deposited with CNCM as I-1968. Applicant further claims a lactic ferment comprising at least one strain of *L. bulgaricus* further combined with *Streptococcus thermophilus* (*S. thermophilus*). Applicant finally claims a method for preparing a fermented dairy product comprising a step of fermenting milk, a lactic ferment comprising at least one strain of *L. bulgaricus* and at least one sugar, wherein the sugar is glucose, and a fermented dairy product obtained thereby, wherein the dairy product is yogurt.

Art Unit: 1651

Hottinger et al. teach a method of preparing yogurt wherein fermenting milk is inoculated with *S. thermophilus* and a lac- mutant strain of *L. bulgaricus*, wherein the *L. bulgaricus* has a deletion of at least part of the beta-galactosidase gene (abstract). Hottinger et al. further teach the *L. bulgaricus* mutant is incapable of fermenting lactose (or lacks beta-galactosidase activity) (col.3 line 9-11) and that glucose is added to the culture in order to modulated the acidification rate and post-acidification in storage (col.3 line 14-16). Hottinger et al. disclose a known production of yogurt wherein *S. thermophilus* is combined with a strain of *L. bulgaricus* selected for its inability to ferment lactose (or lacking beta-galactosidase activity) wherein the starting milk must be supplemented with glucose (col.1 line 43-49).

Although the reference does not teach the CNCM number as claimed by applicant, the described characteristics of the mutant *L. bulgaricus* are taught by the reference (see col.5 line 11-25 and 39-53).

Applicant argues that Hottinger teaches a deletion in the beta-galactosidase gene, not a non-sense mutation as claimed. Applicant additionally argues that the mutation creates a structural difference between the claimed invention and the strain of Hottinger. Applicant finally argues that the difference creates different properties of the strain than those described by Hottinger.

However, these arguments fail to persuade because at the time of the invention, it would have been obvious to one of ordinary skill in the art to mutate the lactose operon by any known method because it was well known in the art that such mutations yield *L. bulgaricus* strains with desired characteristics. As evidenced by Hottinger, mutations in the beta-galactosidase gene

Art Unit: 1651

yields strains with a low capacity for acidification and the ability to be moderate these properties with glucose.

Although Hottinger does not teach a non-sense point mutation, it would have been obvious to one of ordinary skill in the art to practice the methods of Hottinger with any method of mutation as it was routine practice in the art at the time the claimed invention was made. In addition, while a point mutation may be different from a deletion mutation, the claimed strain appears to demonstrate properties described by Hottinger. Namely, a low acidification rate with the capability of being moderated by glucose. Moreover, at the time of the claimed invention, one of ordinary skill in the art would have been motivated by routine practice to practice the methods of Hottinger with a non-sense strain. Furthermore, as described by applicant, the non-sense mutation of the claimed invention is always devoid of beta-galactosidase activity, indicating one would expect the properties to be similar to strains with deletion mutations. Therefore, at the time of the invention, one of ordinary skill in the art would have been motivated to practice the method of Hottinger with a non-sense mutated strain with a reasonable expectation for obtaining a mutant with properties described by Hottinger.

For the reasons stated above and those made previously of record, the claims are rendered unpatentable over Hottinger.

6. Claims 6, 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hottinger in view of Mainzer.

Applicant argues that Mainzer teaches conditional mutants, pH and temperature sensitive, not mutants with non-sense mutations as claimed.

Art Unit: 1651

However, this argument fails to persuade because Mainzer specifically teaches that it is advantageous to have fermentation slowed or stopped after reaching a certain temperature rather than refrigerating, or cooling, to stop fermentation (col.2 line 35-45). At the time of the invention, one of ordinary skill in the art would have been motivated by Mainzer to stop fermentation without cooling because it is disclosed to be advantageous to do so. Therefore, the claims remain rejected for these reasons and those made previously of record.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Art Unit: 1651

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth A. Davis whose telephone number is 703-308-6310. The examiner can normally be reached on M-H (7:00-4:30); altn. F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 703-308-4743. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Ruth A. Davis; rad
April 8, 2002



LEON B. LANKFORD, JR.
PRIMARY EXAMINER